DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
690 Walnut Ave.St. 150
Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 13.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-006958
Date Inspected: 26-May-2009

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Oregon Iron Works Clackamas, Or.

OSM Arrival Time: 700
OSM Departure Time: 1530
Location: Clackamas, OR

CWI Name:	Mike Gregson, Rob Walters	**CWI Present:**	☑ Yes ☐ No
Inspected CWI report:	☐ Yes ☑ No ☐ N/A	**Rod Oven in Use:**	☐ Yes ☐ No ☑ N/A
Electrode to specification:	☑ Yes ☐ No ☐ N/A	**Weld Procedures Followed:**	☑ Yes ☐ No ☐ N/A
Qualified Welders:	☑ Yes ☐ No ☐ N/A	**Verified Joint Fit-up:**	☑ Yes ☐ No ☐ N/A
Approved Drawings:	☑ Yes ☐ No ☐ N/A	**Approved WPS:**	☑ Yes ☐ No ☐ N/A
		Delayed / Cancelled:	☐ Yes ☑ No ☐ N/A

Bridge No: 34-0006
Component: Hinge K Pipe Beams

Summary of Items Observed:

The Quality Assurance Inspector Sean Vance arrived on site at Oregon Iron Works, Inc (OIW) in Clackamas, OR, to randomly observe the in process welding of the Hinge K Pipe Beam assemblies. The QA Inspector arrived on site to randomly observe the OIW Quality Control (QC) Inspectors in process and completed visual and nondestructive testing. Upon the arrival of the QA Inspector the following observations were made:

OIW Fabrication Shop-Bay 3
Hinge-K Pipe Beam Assembly 102A-1: 5/26/09
a111-1 Forging to a110-1 Base Plate
QA Inspector noticed this assembly 102A-1 was currently sitting idle, with a pending critical weld repair on weld joint #W2-12/W2-13.

Hinge-K Pipe Beam Assembly 102A-2: 5/26/09
a111-2 Forging to a110-2 Base Plate
QA Inspector noticed this assembly 102A-2 was sitting idle, with a pending non-critical weld repair.

Hinge-K Pipe Beam Assembly 102A-3: 5/26/09
a111-3 Forging to a110-3 Base Plate
QA Inspector noticed this assembly 102A-3 was sitting idle, with a pending non-critical weld repair.

Hinge-K Pipe Beam Assembly 102A-4: 5/26/09
a111-4 Forging to a110-4 Base Plate
QA Inspector noticed this assembly 102A-4 was sitting idle.

Hinge-K Pipe Beam Fuse Assembly 120A-1: 5/26/09
a124-6 Half Fuse to a124-7 Half Fuse
QA Inspector noticed this fuse assembly 120A-1 was sitting idle in OIW Bay 6, pending the stainless steel overlay process.

Hinge-K Pipe Beam Fuse Assembly 120A-2: 5/26/09
a124-3 Half Fuse to a124-11 Half Fuse
QA Inspector noticed this fuse assembly 120A-2 was sitting idle, with a pending third time critical weld repair.

Hinge-K Pipe Beam Fuse Assembly 120A-3: 5/26/09
a124-12 Half Fuse to a124-10 Half Fuse
QA Inspector noticed this fuse assembly 120A-3 was previously transferred to OIW Bay 6 and was sitting idle, pending the stainless steel overlay process.

Hinge-K Pipe Beam Fuse Assembly 120A-4: 5/26/09
a124-13 Half Fuse to a124-4 Half Fuse
QA Inspector noticed this fuse assembly 120A-4 had been previously loaded onto a trailer on 5/22/09 and was transferred to A&G, in preparation for the rough machining process. QA Inspector noted that OIW project manager Bill Pender and OIW Machinist would be arriving on this date to verify lathe set-up and document the circumference and variations of flatness, before releasing A&G to start rough machining. QA Inspector was notified by OIW project manager Bill Pender, that OIW machinist would be arriving at A&G at approximately 10:00 a.m. on this date, to verify lathe set-up and document the circumference and variations of flatness. QA Inspector explained to Mr. Pender that the QA Inspector would also be arriving to witness the OIW machinist verifying lathe set-up and documenting the circumference and variations of flatness, prior to releasing assembly 120A-4 to A&G. QA Inspector arrived at A&G at approximately 10:30 a.m. on this date and noticed the OIW machinist was measuring variations of flatness with a dial indicator, at various locations and was documenting the resulting measurements. QA Inspector noticed OIW machinist had completed the variation of flatness on the outside diameter of assembly 120A-4 and OIW machinist verbally gave A&G machinist approval to begin rough machining. A&G machinist explained to QA Inspector that rough machining would be started on this date and the first cut pass would be approximately .160” (4mm) and would probably require a total of three cut passes to achieve the desired results of a finished diameter of 1903mm. QA Inspector noted this finished outside diameter appeared to in compliance with the contract requirements of 1900mm (+/- 3mm). QA Inspector noted that once A&G completes the rough machining and fuse assembly 120A-4 arrives back to OIW, OIW QC Inspectors will perform 100% final ultrasonic weld inspection on the CJP butt splice. See attached picture below of fuse assembly 120A-4.

Hinge-K Pipe Beam Fuse Assembly 120A-5: 5/26/09
a124-14 Half Fuse to a124-2 Half Fuse
QA Inspector noticed that welder # T6, Mr. Craig Jacobsen had previously completed the submerged arc welding on the a124-14 half fuse to a124-2 half fuse, CJP weld splice, designated as weld joint #WM3-18. QA Inspector

noticed QC Inspector Rob Walters performing 100% preliminary ultrasonic weld inspection on the a124-14 half fuse to a124-2 half fuse, CJP weld splice, designated as weld joint #WM3-18. QA Inspector noticed Mr. Rob Walters was performing the ultrasonic weld inspection on face A and was utilizing a 70 transducer angle. Mr. Rob Walters explained to QA Inspector that a 70 transducer and a 60 transducer angle would be utilized on face A and a 60 transducer angle would be utilized on face B of the weld joint, for the full volumetric ultrasonic weld inspection. QA Inspector noted that Mr. Rob Walters appeared to be in compliance with AWS D1.5 and contract requirements.

Hinge-K Pipe Beam Sub-Assembly a124-1: 5/26/09
a125 & b125 Ring Stiffeners to a124-1 Half Fuse
QA Inspector randomly witnessed OIW welder #O6, Mr. Tim O'Brian, performing submerged arc welding on the a125 internal ring stiffener to a124-1 half fuse, designated as weld joint #WM3-12
QA Inspector noticed the submerged arc welding was being performed in the flat position and verified Mr. Tim O'Brian was currently qualified for this welding process/position and randomly recorded pre-heat temperatures of approximately 350 F, which is in accordance with the applicable welding procedure specification (WPS 4020). QA Inspector noticed that QC Inspector Rob Walters was present to randomly verify in-process welding parameters (amps/volts) and pre-heat temperatures. QA Inspector noted that the submerged arc welding being performed by Mr. Tim O'Brian, appeared to be in compliance with the applicable welding procedure specification (WPS 4020). See pre-heating picture below.

Hinge-K Pipe Beam Sub-Assembly a124-5: 5/26/09
a125 & b125 Ring Stiffeners to a124-1 Half Fuse
QA Inspector noticed this sub-assembly a124-5 had been previously transferred from the OIW storage yard to OIW Bay 3, in preparation for the submerged arc welding on the internal ring stiffeners, a125 & b125. QA Inspector noticed that welder # H49, Mr. Rick Hinkle was grinding to clean sound metal, on the interior of sub-assembly a125-5, in preparation for the submerged arc welding.

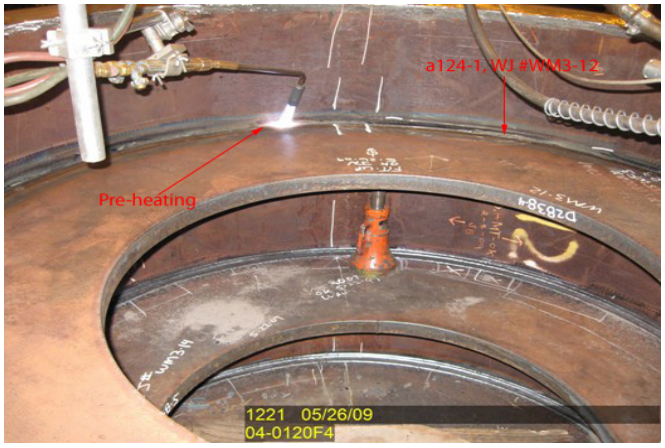
Hinge-K Pipe Beam Sub-Assembly a124-9: 5/26/09
a125 & b125 Ring Stiffeners to a124-9 Half Fuse
QA Inspector noticed the submerged arc welding was complete on the internal ring stiffeners and this assembly a124-9 was sitting idle.

OIW South Storage Yard: 5/26/09
QA Inspector noticed the following half-fuse sub assemblies were sitting idle, pending submerged arc welding on the internal stiffener rings, piece marks identified as a125 & b125: a124-8, a124-15 and a124-16.

Material, Equipment, and Labor Tracking
QA Inspector Sean Vance performed a verification of material, personnel and equipment involved with the project. The QA Inspector observed at Oregon Iron Works: 6 OIW production personnel and 2 QC Inspectors.The following was observed at A&G: 1 A&G supervisor, 1 A&G Machinist and 1 OIW Machinist.

WELDING INSPECTION REPORT

(Continued Page 4 of 4)



Summary of Conversations:

As noted above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

Inspected By:	Vance,Sean	Quality Assurance Inspector
Reviewed By:	Adame,Joe	QA Reviewer